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A CASUAL MODEL OF BARRIERS AND INCENTIVES TO AFFORDABLE HOUSING IN SOUTHERN RURAL COMMUNITIES: DIVERSITY

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Abstract

Housing type diversity was examined from two dimensions: type of non- single housing available and perception of number of housing types available within rural communities. There are several factors which contribute to the diversity of housing options: regulations, finance, and practices available within communities which support the development of various housing types and forms. The range in diverse options is a major influence on affordability and quality of housing units available. The aim of this study was to examine housing diversity within communities in relation to demographic, economic, attitudinal, and housing characteristics.

The data for this study came from the S-194 Southern Region Housing Research Project, "Barriers and Incentives to Affordable Housing." This specific paper utilized 1980 census data related to demographic and housing characteristic variables, housing practices variables, and data collected from other sources.

Two dependent variables were employed to measure housing diversity at the community level: 1) the percentage of non-single housing units -- calculated as a portion of the total housing unit, and 2) housing type diversity score for each community based on the housing type subscale from the Housing Practices Survey. Utilizing a hypothesized framework, the independent variables were identified and categorized as: demographic, economic base, attitudes and values/household(H), attitudes and values/intermediaries and leaders(IL), and housing practices/regulations/community services. Pearson product moment correlations were calculated for each subset of variables and then entered into a stepwise regression procedure. In the final modeling, over 48% of the variance was explained in the model that used the percentage of non-single housing as a dependent variable. Only three variables were significant: apartment demand/IL, shopping and transportation, and educational institutions. Independent variables of adequacy of services/H, receptiveness to loans/IL, and apartment demand/IL contributed to 62.8% of the variance to the housing type diversity model. These measures indicated that values and attitudes held by both the households and the community leaders and intermediaries are a large determinant in the types of housing that are available in the community.

Introduction

Communities face many challenges in dealing with factors that limit or expand available options in housing for their residents. There are several factors which influence diversity in housing options. The major diversity options include: regulations, finance, and practices available within the community to support the development of housing types. Affordability and quality of housing units are often dependent on the range of housing options available (Weber, McCray, Beamish, & Nealeigh, 1992). An examination of diversity factors reveal opportunities for rural communities to explore expansion of housing options in the South.

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A study by the United States Department of Housing and Urban Development (1985) suggests that housing costs can be reduced by as much as 20% through actions controlled at both the local and state governmental levels. These actions include removing restrictive building and land use regulations, streamlining processing procedures that cause delay in construction, ensuring adequate supplies of affordable land or building residential housing units, and accepting housing designs that reflect changing family size and life-styles. The local regulatory climate has a tremendous impact on housing supply and cost (Tucker, 1991).

Regulations range from land use policies to building codes governing the structure of the individual housing unit. Communities have traditionally sought to constructively guide growth and regulate development through land use plans, zoning ordinances, and building codes. Recent years have seen the addition of additional regulations such as multiple permit systems, assessment procedures, and impact fees. These restrictions can increase the amount of time and money involved in construction, thereby increasing the cost of the housing unit.

Pollakowski and Wachter (1990) found land use regulations raise the cost of housing as well as development of land prices. Their research also suggests a spillover effect between the locality and the zoning and growth management controls which have greater impact together than when measured separately.

A national survey found that in 1970, 97% of the developers interviewed obtained development permission in one year or less; while in 1975, only 42% obtained development approval in one year or less (Seidel,1978). Dowall (1979) and Pollakowski and Wachter (1990) cite the effects of cumbersome regulatory processes that include: increases in land costs, land preparation costs, shifting development costs from the public to the project, and rising administrative and delay costs. Additionally, there is a facilitation of monopoly power and a market reorientation that often cause developers to direct their projects to higher income customers.

Katz and Rosen (1987) suggested new trends in land use regulations appears to increase the costs of new housing production. An assessment over the past 40 years would suggest that land costs have doubled, with a large burden of this cost related to regulations in the development process. Tucker (1991) proposed that excessive regulation has contributed to homelessness.

Financing practices of the local lending institutions relate significantly to the housing availability within a community. Lenders are duly concerned with the return on investments and the resale value of homes. However, conservative lending practices constrain builders from building and consumers from seeking innovative housing designs. Little (1977) notes that housing preferences differ, and that more choice in housing is interpreted as better housing, based on individual desires.

The federal government was the major supplier of construction funds for housing development in the rural South, particularly for low-income housing prior to the 1974 moratorium on housing construction funds. Since that time and particularly since the across-the-board reduction in federal spending of the 1980s, rural communities in the South have been at a considerable disadvantage due to their heavy reliance upon federal assistance for development monies of all types.

Federal housing programs of the 1960s and 1970s were expanded, and a number of problems arose along with an inflationary economy. Subsidized home ownership and rental programs saw a rise in defaults. These problems caused a moratorium on supply-side housing programs in favor of demand-side programs. With the decrease in federal programs, state and local communities were encouraged to creatively develop assistance programs (Ford Foundation, 1989). For example, Auzers (1990) reported that an innovative financing program in California, called the "Essential Purpose Housing Bond," combines revenue bonds with tax increment financing to support public housing.

During the 1970s and 1980s many state and local governments created Housing Finance Agencies to complement federal programs. Community Development programs expanded and complemented the federal, state, and local programs. Communities have the option of participating in state and federal programs, as well as developing their own initia-

tives. Participation in the programs was often related to the leadership of the community and an awareness of the availability of resources to support the housing and infrastructure of the community. One such project, "The Orlando Affordable Housing Demonstration Project," was designed to demonstrate affordability and eliminate excessive regulatory structure (York, 1991).

The diverse types of housing available within a community is dependent both on the regulatory and financing options available, as well as the social structure (McCray, Weber, & Claypool, 1986; McCray, Weber, & Claypool, 1987). The social structure may be open to diversity in design, housing types, and multi-family structures, while other communities favor tradition and sameness. A social structure which responds to diversity in people, cultures, and housing allows options for affordability and quality.

Previous research which focused on affordability considered the relationship between affordable units based on an income ratio and the quality of the units (Lazere, Leonard, & Kravitz, 1989). The uniqueness of the current study considers diversity in housing from two perspectives.

Barriers and Incentives to Housing Diversity Model

Diversity of housing available for households within a community is often dependent on affordability and quality issues. Financing, regulations, and programs determine both the structural type and the cost of units available and provide both barriers and incentives to the development of housing within the community. Past research has primarily examined issues related to availability of housing options from a single perspective (i.e., regulations or financing or housing practices). These variables were used to begin the development of the diversity component for housing affordability in a rural context. Diversity, as measured by the number of non-single housing units, considers options available within a community. The housing type diversity score is also a measure of available options within a community which is a perception of availability of housing types. Several variables related to demographics, economics, values and attitudes, and housing practices were introduced into one final model. The specific purpose of this study is to explore the determinants of housing diversity issues within a community framework that considers two dimensions: non-single housing types and housing practices within the community.

Methodology

The S-194 Southern Region Research Project, "Barriers and Incentives to Affordable Housing" provided the data for this study. The specific data used in this paper included 1980 census data related to demographic and housing characteristic variables, housing practices variables, and data collected from other sources including: community case studies, and mailed surveys to households, community lenders, and intermediaries. For a complete discussion of the methodology, see McCray (this issue) and Hanna, McManus, Beamish and Goss (1991).

Analysis of Data

Formulation of Dependent Variables

Two variables were utilized to measure diversity in housing at the community level. The measures included: 1) the percent of non-single housing units calculated as a portion of the total housing units using the 1980 census data:

$$\frac{1 - \#\text{ of single units}}{100}$$

and 2) housing type diversity score for each community. These two perspectives of diversity measure a community perspective from the type of housing actually available within the community and the perception of housing available. Housing type diversity was based on the housing type subscale from the Housing Practices Survey. The subscale included ten housing types (earth sheltered/underground; passive solar; active solar; multi-unit solar;

apartments; townhouses; other multi-unit; planned mobile home community; manufactured housing; and adaptive re-use project). Community scores had been determined by asking six intermediaries in each community (real estate agent, lender, mayor or city manager, Cooperative Extension Supervisor, Farmers Home Administration County Supervisor, and regional planner) to respond to the availability of these options. The "yes" responses were combined and used to determine a housing diversity score for each community with a range of 1-10 (for further clarification, see Weber, Beamish, & McCray, 1991).

Description of Housing Diversity

Table 1 presents the data from each of the communities that describe the diversity measures. The percentage of non-single housing units varied from a high of over 31% in the high diversity-low population community in North Carolina to a low of under 10% in the high diversity-low population community in Oklahoma.

Table 1. Seven Southern states diversity measures for 28 selected communities.

		Diversity Measures	
State	Community	% non-single housing unit	Diversity score
Alabama	Low Diversity-Low Population	-	1.80
	Low Diversity-High Population	18.10	3.80
	High Diversity-Low Population	14.26	5.20
	High Diversity-High Population	10.72	5.40
Arkansas	Low Diversity-Low Population	16.98	0.08
	Low Diversity-High Population	14.48	1.00
	High Diversity-Low Population	19.41	3.60
	High Diversity-High Population	19.56'	6.50
Georgia	Low Diversity-Low Population	20.00	2.50
	Low Diversity-High Population	10.43	2.33
	High Diversity-Low Population	20.45	4.75
	High Diversity-High Population	22.90	2.50
North Carolina	Low Diversity-Low Population	14.66	3.33
	Low Diversity-High Population	14.47	4.00
	High Diversity-Low Population	31.74	4.67
	High Diversity-High Population	14.37	6.50
Oklahoma	Low Diversity-Low Population	19.05	3.00
	Low Diversity-High Population	10.96	2.75
	High Diversity-Low Population	9.41	5.20
	High Diversity-High Population	25.41	5.00
Tennessee	Low Diversity-Low Population	14.36	2.00
	Low Diversity-High Population	17.98	1.00
	High Diversity-Low Population	17.11	5.67
	High Diversity-High Population	15.83	5.75
Virginia	Low Diversity-Low Population	17.09	4.25
	Low Diversity-High Population	19.13	4.80
	High Diversity-Low Population	27.49	6.75
	High Diversity-High Population	16.85	5.50

The housing type diversity score for each of the communities also varied between the communities. The lowest score existed in the low diversity-low population community in Arkansas with a 0.08 to 6.75 in the high diversity-low population community of Virginia. The highest achievable score was 10.00, suggesting that even the community with the highest diversity score did not include all of the housing options. Most of these rural communities appeared to have very few housing type options available.

Independent Variables

Relevant variables were identified from a hypothesized framework and were categorized as: demographic, economic base, attitudes and values/household, attitudes and values/intermediaries and leaders, and housing practices/regulations/community services. For a complete discussion of the variables and the data sources, refer to McCray (this issue). Pearson product moment correlations were calculated for each subset of variables. Of the variables which were correlated at the .80 level and above, only one of the variables was utilized in the analysis which addressed the problem of multi-collinearity.

Following this procedure, each set or subset of variables was entered into a regression model utilizing stepwise regression procedures. The services, finance, program, and regulations model component (Table 2) explained the most variance for both the housing type diversity (adjusted R^2=.48) and percent non-single housing (adjusted R^2=.45). The demographic model and values and attitudes model components contained significant variables related to diversity. These regression models only identified two variables that were significant for both models. The variables were household demand for apartment units and intermediary perception of barriers and incentives related to housing attitudes.

Table 2. Relationships between housing diversity variables and model components: Regression analysis.

	Housing Type Diversity	% Non Single Housing
	beta coefficients	
Demographic Model Component		
Median family income	0.00*	---
Median Age	---	-0.07*
% white	---	0.19*
Adjusted R^2	0.25	0.20
Values and Attitudes Model Component		
Households disposition toward Innovativeness		
Receptivity to new housing ideas	9.22*	
Adjusted R^2	0.13	
Housing demand for housing option		
House demand	1.68	---
Apartment demand	6.79*	12.93*
Adjusted R^2	0.44	0.12
Households perceptions of barriers and incentives		
Building regulations	-2.32	-18.02*
Zoning regulations	-2.87	---
Acceptance of housing alternatives	4.76*	---
Adjusted R^2	0.37	0.14
Household receptivity to support		
Overall support	1.97*	
Housing affordability	-2.74	
Adjusted R^2	0.18	
Intermediary disposition toward Innovativeness		
Receptivity to new housing ideas	4.76*	
Work with things and ideas	3.67	
Innovative attitude toward housing improvement	-6.68*	
Adjusted R^2	0.28	
Intermediary demand for housing option		
Apartment demand	3.26*	
Adjusted R^2	0.12	

Table 2. Continued.

Intermediary perceptions of barriers and incentives		
Housing regulation	---	-5.80
Housing finance	2.56*	3.36
Housing production	-1.18	---
Housing availability	---	-8.49*
Housing features	-0.55	---
Housing attitudes	-2.80*	-7.55*
Adjusted R^2	0.43	0.25
Intermediary receptivity to support		
Overall support	1.45	
Program for rental units	1.77	
Program for loans	5.38*	
Homes	-4.64*	
Adjusted R^2	0.25	
Services, Finance, Programs, & Regulations Model Component		
Housing regulations score	0.67*	---
Rescue service	0.64*	---
Community club/media	---	3.13*
Water	-0.21	---
Education Institutions	---	1.06*
Shopping transit	---	-1.77*
Police and crime rate	-0.46	-2.28
Adjusted R^2	0.48	0.45

* $p \leq 0.05$ level of significance

The demographic model components explained 25% of the variance in the housing type diversity model with median family income as a significant variable. Median age and percent white were significant variables in explaining 20% of the variance in the percent of non-single housing.

The sub-models which contained significant variables and explained variance in the housing type diversity model were: household disposition toward innovativeness (13%), household demand for housing options (43%), household perception of barriers and incentives (37%), household receptivity to support services (10%), intermediary disposition toward innovativeness (28%), intermediary demand for housing option type (12%), intermediary perception of barriers and incentives (43%), and intermediary receptivity to support services (25%). The sub-models explaining variance in the percent of non-single housing units included: household demand for housing (12%), household perceptions of barriers and incentives (14%), and intermediary perceptions of barriers and incentives (25%).

The services, finance, programs, and regulations component explained variance in both diversity models. The housing type diversity model has 48% of its variance explained by this component, while 45% of the variance is explained in the percent non-single housing model.

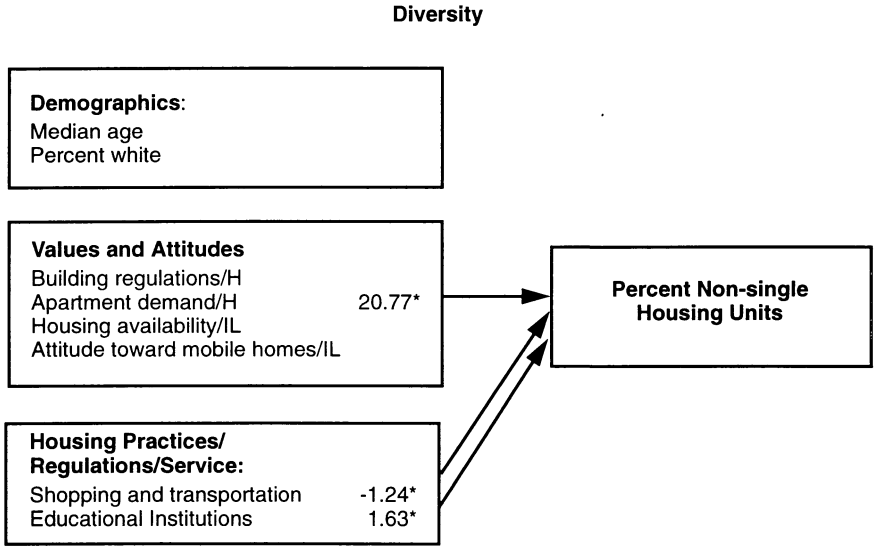
The significant variables within each model with the highest R^2 were selected for use in the final regression model. The independent variables identified for use with percentage of non-single housing units were: median age, percentage white, (demographic); building regulation/Household (H), (attitudes and values/H); apartment demand/Intermediaries and Leaders (IL), housing availability/IL, attitudes toward mobile home/IL, (attitudes and values/IL); shopping and transportation, educational institutions, and clubs/media (housing practices/regulations/community services). The independent variables identified for use with the housing type diversity score measure were: number of families, number of families in poverty (demographic), acceptance of housing alternatives/H, receptiveness to new housing ideas/IL; adequacy of services/IIL; (attitudes and values/H); receptiveness to new housing ideas/IL, innovative attitudes toward housing improvement/IL, lenders' attitudes/IL, attitudes

toward mobile homes/IL, receptiveness to loans/IL (attitudes and values/IL); housing regulations and rescue service (housing practices/regulations/community services).

Final Model Determination

The SAS stepwise regression procedure was used in the development of the regression models. Models with an upper bound on the condition number greater than 21 were not used in the final models. Separate stepwise regressions were performed using each diversity measure as a dependent variable. For each measure, a set of variables contributed to the explanation of variance in the measure (see Figure 1).

Figure 1. Final model of barriers and incentives to affordable housing.



Note: H indicates household data set.
IL indicates the intermediaries and leaders data set.

Over 48% of the variance was explained in the model that used the percentage of non-single housing as a dependent variable. Only three variables were significant in the regression model (Table 3). These were the apartment demand as perceived by households, shopping and transportation, and educational institutions. The intermediaries' perception of housing availability, while not significant, did contribute to the explanation of diversity.

The other dependent variable used to measure diversity was the housing type diversity score (Figure 2). The regression analysis indicated that of the independent variables, the significant components were in the values and attitudes arena. Table 3 indicates that housing regulations and intermediaries' receptiveness to loans and homeownership programs and household's perceptions of apartment demand were significant in the regression model. The independent variables contributed to 62.8% of the explanation of variance to the housing type diversity scores in the rural communities.

Summary and Implications

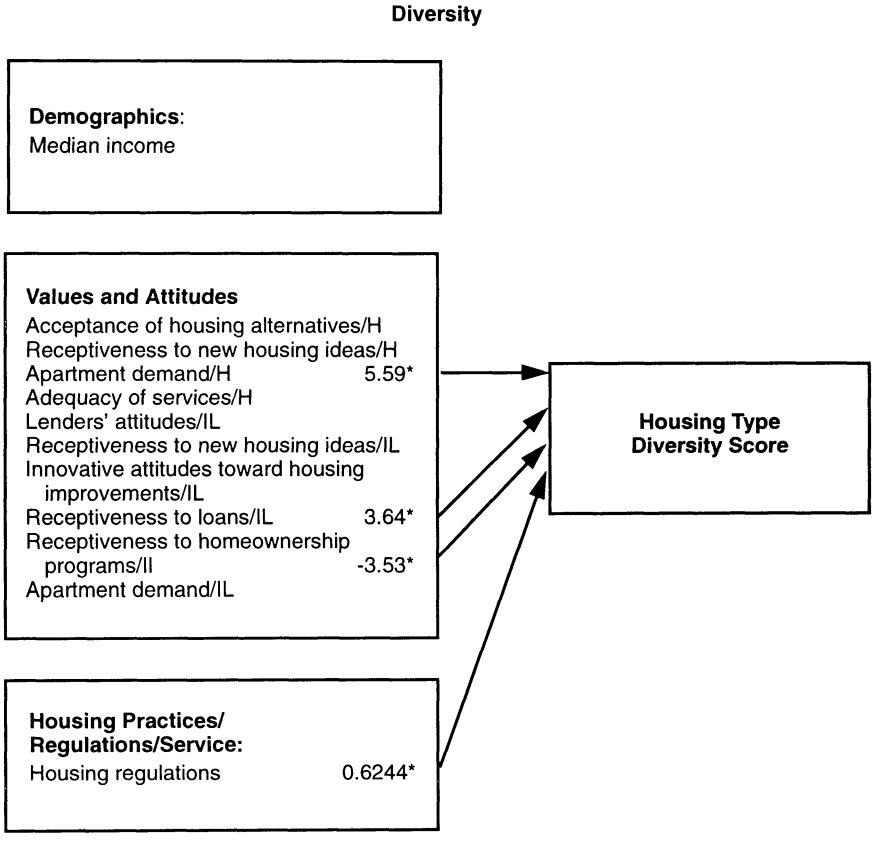
The measures used to assess diversity within the community related to housing include the percent of non-single housing units and the housing type diversity score. These two measures give an actual view of housing in the community and a perception of the type of

Table 3. Factors influencing housing diversity in 28 southern rural communities: Regression analysis.

Variables	Model 1 Diversity Score	Model 2 % Non-Single Housing Unit
	Regression Coefficient	
Housing regulations score		0.62*
Receptiveness to home ownership programs/IL		-3.53*
Receptive to loans/IL		3.64*
Apartment demand/H	20.77*	5.59*
Shopping and transportation	-1.24*	
Education institutions	-1.63*	
R^2	0.56	0.67
Adjusted R^2	0.485	0.60

*$p \leq 0.05$ level of significance
Note: IL indicates intermediary and leaders data set.

Figure 2. Final model of barriers and incentives to affordable housing.



Note: H indicates household data set.
IL indicates the intermediaries and leaders data set.

housing available. The measures indicated that values and attitudes held by both the households and the community leaders and intermediaries are a large determinant in the types of housing that are available in the community and explained more of the variance in the perceived diversity model, whereas infrastructure contributed more to the actual diversity model.

The other variables that contributed to the diversity of housing within the community related to the infrastructure of the community. The availability of transportation and shopping and educational institutions were important to determining the type of non-single housing in existence. Additionally, the perception of demand for apartments by the households was significant in both models indicating that the perception that the demand exists may promote measures to supply this housing type.

Rural communities tend to be conservative and do not usually have a wide range of opportunities in financing options, regulatory measures, and programs. This limited array of options serves as a barrier to the availability of affordable, quality housing. Community leaders and intermediaries can have a large impact on the various options that the community chooses to participate in, which in turn will provide more opportunities for households to choose housing suitable for their needs.

This research suggests that rural communities are very limited in the diversity of housing options available. The conceptual model developed from this study provided the opportunity to explore diversity from four perspectives: demographics, economic, values and attitudes, and practices (service/finance/programs/regulations). It is interesting to note that the economic component did not influence diversity in housing within the community. Although demographic variables are important to the diversity of housing options, the real factors that influence housing availability are related to values and attitudes and actual practices of the leaders/intermediaries in the rural communities.

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